



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/707,198	11/26/2003	Daniel J. Mellinger	BUR920030065US1	1197
23389	7590	12/07/2004	EXAMINER	
SCULLY SCOTT MURPHY & PRESSER, PC			NGUYEN, HUNG	
400 GARDEN CITY PLAZA			ART UNIT	
GARDEN CITY, NY 11530			PAPER NUMBER	
			2851	

DATE MAILED: 12/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/707,198

Applicant(s)

MELLINGER ET AL.

Examiner

Hung Henry V Nguyen

Art Unit

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 1-8 and 17-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-21 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of group II (claims 9-16) in the reply filed on September 27, 2004 is acknowledged.

Drawings

2. New forming drawings are required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Art Unit: 2851

4. Claims 9-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Grodnensky et al (U.S.Pat. 5,835,227).

With respect to claims 9-16, Grodnensky discloses a method for determining an optimum photolithography process window and comprising all basic steps of the instant claims including step of exposing a portion of wafer/or wafer (26) to a pattern of a reticle (16) and stepping the reticle across a remaining portion of the wafer, where each step exposes an other region of the wafer to the pattern features producing the varying condition (see col.6, lines 1-13).

Grodnensky et al further discloses a step of determining an optimum the pattern having pattern features producing varying overlay conditions (see figure 1), wherein each overlay condition of the varying overlay conditions has a predetermined overlay tolerance (see col.7, lines 45 thru col.8 line 22); and producing test structures from the multiple overlay conditions and testing the test structure (see col.8, lines 36-52) and wherein the pattern comprises a varying image size and varying pattern feature alignment and wherein each overlay condition comprises an image size and a pattern feature alignment (please see col.8, lines 52-67 and col.9, lines 11-27; and col.10, lines 8-25).

5. Claims 14-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Leidy et al (U.S.Pat. 6,716,559).

With respect to claim 14, Leidy et al discloses a method for determining an optimum overlay tolerance in photolithography process and comprising all basic steps of the instant claim such as exposing a wafer to a pattern of a reticle (see col.3, lines 19-20), the pattern having pattern features producing varying overlay conditions (see col.3, lines 21-25), wherein each

Art Unit: 2851

overlay condition of the varying overlay conditions has a predetermined overlay tolerance (see col.3, lines 21-25; lines 59 thru col.4, line 10); and producing test structures from the multiple overlay conditions and testing the test structure (see col.3, lines 29-31) and wherein the pattern comprises a varying image size and varying pattern feature alignment and wherein each overlay condition comprises an image size and a pattern feature alignment (please col.5, lines 25-35, and claims 2-6).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leidy et al (U.S.Pat. 6,716,559) in view of Grodnensky et al (U.S.Pat. 5,835,227).

With respect to claims 9-13, Leidy et al discloses a method for determining overlay tolerance including steps of exposing wafers to a pattern of a reticle at varying overlay conditions/different critical conditions, and varying the overlay tolerance across the wafer and using functional yield data from the wafer to determine an desired overlay tolerance for each of the images sizes and producing test structures from the varying overlay conditions and testing the test structures to determine the optimum photolithography process window (see col.3, lines 18-59). Thus, Leidy et al discloses substantially all of the limitations of the instant claims. The only difference is: for optimizing the photolithography process window, while Leidy discloses

Art Unit: 2851

exposing wafers at different critical conditions/varying overlay conditions, the present application discloses exposing a portion of a wafer at varying overlay conditions. But this in itself does not provide any inventive step. For example, Grodnensky et al, as discussed above, discloses a method for determining an optimum photolithography process window having step of exposing a portion of wafer/or wafer (26) to a pattern of a reticle (16) and stepping the reticle across a remaining portion of the wafer, where each step exposes an other region of the wafer to the pattern features producing the varying condition (see col.6, lines 1-13). In view of such teachings, it would have been obvious to combine the teachings of Leidy et al and Grodnensky et al to obtain the invention as specified in claims 9-13. It would have been obvious to a skilled artisan to expose a portion of the wafer of Leidy at varying overlay conditions as taught by Grodnensky so that the processing of entire of wafer is not needed whereby the operation cost for determining the overlay tolerance is greatly reduced.

Prior Art Made of Record

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bula et al (U.S.Pat. 6,373,975) ; Peterson et al (US 2004/0091142 A1) and Fujimoto (U.S.Pat. 6,670,632) disclose patterning processes and have been cited for technical background.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Henry V Nguyen whose telephone number is 571-272-2124. The examiner can normally be reached on Monday-Friday (First Friday off).

Art Unit: 2851

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Hung Henry V Nguyen
Primary Examiner
Art Unit 2851

hvn
11/30/04